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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/540,951	06/27/2005	Elizabeth E. Mannick	Mannick 04M11-US	5113

25547 7590 07/17/2008

PATENT DEPARTMENT
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EXAMINER	
SHAW, AMANDA MARIE	
ART UNIT	**PAPER NUMBER**
1634	

MAIL DATE	DELIVERY MODE
07/17/2008	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/540,951	MANNICK ET AL.	
	Examiner	Art Unit	
	AMANDA SHAW	1634	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *23 April 2008*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-14* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-14* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *16 November 2006* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *6/27/2005, 8/10/2005*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

Election/Restrictions

1. Applicant's election of Group II (Claims 1-14) in the reply filed on December 14, 2007 is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)).

Additionally the Applicants have elected the species of the use of mifepristone to treat a patient in which a polymorphism of a CSFIR gene associated with a genetic predisposition for inflammatory bowel disease has been detected.

Specification

2. The disclosure is objected to because of the following informalities: the specification (page 14) teaches that the A2033T mutation occurs in the second intron (para 0033), but then Table 2 teaches that this same mutation occurs in intron 1, and additionally the specification (page 14) teaches that this SNP was detected in the eleventh intron (para 0036). Therefore it is not clear which intron this SNP actually occurs in. Appropriate correction is required.

Claim Rejections - 35 USC § 112 2nd paragraph

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-14 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 1-6 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite in that the goal of the method and the final step do not agree. The claims are drawn to a method for diagnosing a genetic susceptibility for an inflammatory bowel disease. However, the claims recite the final step of analyzing the nucleic acid to detect the presence or absence of a SNP. In the instant case the final step does not result in diagnosing a genetic susceptibility. Therefore, it is unclear as to whether the claims are intended to be limited to a method for diagnosing a genetic susceptibility for an inflammatory bowel disease or a method for analyzing a nucleic acid to detect the presence or absence of a SNP.

Claims 4-5 and 10-11 recite the limitation "said analysis". There is insufficient antecedent basis for this limitation in the claim because although the claims previously refer to a step of analyzing they do not refer to a step of “analysis”.

Claims 7-14 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite in that the goal of the method and the final step do not agree. The claims are drawn to a method of treatment or prophylaxis. However, the claims recite the final step of treating the subject for inflammatory bowel disease. In the instant case the preamble of the claims is a lot broader than the final step because it encompasses the treatment or prophylaxis of any disease or condition. Therefore, it is unclear as to whether the

claims are intended to be limited to a method of treatment or prophylaxis or a method for treating a subject for inflammatory bowel disease.

Claim Rejections - 35 USC § 112 1st paragraph

4. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 1-14 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. This is a Written Description rejection.

The analysis used in this Written Description rejection follows the guidelines provided in the Federal Register, Vol. 66, No. 4, January 1, 2001, beginning at page 1099 (referred to in the rejection as "the guidelines").

The guidelines direct one, for each claim, to determine what the claims as a whole cover (p. 1105, 2nd column).

Claims 1-6 are drawn to a method for diagnosing a genetic susceptibility for an inflammatory bowel disease in a subject by detecting the presence or absence of a single nucleotide polymorphism in a CSFIR gene. However the claims do not define the nucleotide variation in terms of particular structure or function, therefore the claims encompass the analysis of any variation (i.e. insertions, substitutions, inversions,

deletions, translocations) at any position in gene that is associated with a genetic predisposition for inflammatory bowel disease. Although claim 2 recites that the genetic modification is located at 2033 base pairs from the 3' end of the eleventh intron of the CSF1R gene, this is still problematic because the claim does not recite specific alleles that occur at this position that are associated with inflammatory bowel disease. Further claims 7-14 are drawn to a method of treatment or prophylaxis in a subject by detecting the presence or absence of a single nucleotide polymorphism in a CSFIR gene and then treating the subject for inflammatory bowel disease. Again the claims do not define the nucleotide variation in terms of particular structure or function, therefore the claims encompass the analysis of any variation (i.e. insertions, substitutions, inversions, deletions, translocations) at any position in gene that is associated with a genetic predisposition for inflammatory bowel disease. Although claim 8 recites that the genetic modification is located at 2033 base pairs from the 3' end of the eleventh intron of the CSF1R gene, this is still problematic because the claim does not recite specific alleles that occur at this position that are associated with inflammatory bowel disease.

Next, the guidelines direct a review of the application to understand how the application provides support for the claimed invention.

The specification (page 14) teaches 3 mutations in the CSF1R gene that result in nucleic acid substitutions, namely the G2088C, C2012A, and A2033T nucleic acid substitutions. Based on the specification it appears that the G2088C mutation occurs in the promoter and that the C2012A and A2033T mutations occur in introns. It is noted for the record that the specification (page 14) teaches that the A2033T mutation occurs

in the second intron (para 0033), but then Table 2 teaches that this same mutation occurs in intron 1, and additionally the specification (page 14) teaches that this SNP was detected in the eleventh intron (para 0036). Therefore it is not clear which intron this SNP actually occurs in. The specification also discloses the prevalence of the SNPs in patients with Crohn's disease and controls. The results are presented in Table 2 and based on the data only the A2033T mutation was found to be statistically associated with Crohn's disease.

Considering then, the scope of the claims and the teachings of the specification, the guidelines direct one to determine whether there is sufficient written description to inform a skilled artisan that applicant was in possession of the claimed invention as a whole at the time the application was filed. The guidelines direct that such possession may be shown in many ways, including an actual reduction to practice, detailed drawings or in chemical formulas, and description of sufficient, relevant, identifying characteristics. In addition, for a claim drawn to a genus the requirement may be satisfied by description of a representative number of species, reduction to drawings, or by disclosure of other sufficient, relevant, identifying characteristics.

The instant specification does not provide sufficient written description to inform one of possession of the invention as a whole. While the specification teaches 1 mutation in the CSF1R gene that is associated with inflammatory bowel disease, the specification has only provided an invitation to experiment. While one could contemplate every insertion, substitution, inversion, deletion, and translocation at each and every position in the CSF1R gene, such nucleotide variations are not considered to

be equivalent to specific nucleotide variations associated with inflammatory bowel disease. Rather, mutations in the CSF1R gene associated with inflammatory bowel disease represent a distinct group of nucleotide variations which are expected to occur at only specific locations within the gene and consist of specific nucleotide alterations. Accordingly, knowledge of the sequence of the wild-type gene does not allow the skilled artisan to envision all of the contemplated polymorphisms encompassed by the claimed genus.

For these reasons, Applicants have not provided sufficient evidence that they were in possession, at the time of filing, of the invention as it is broadly claimed and thus the written description requirement has not been satisfied for the claims as they are broadly written. Applicant's attention is drawn to the Guidelines for the Examination of Patent Applications under 35 U.S.C. 112, ¶ 1 "Written Description" Requirement, Federal Register, Vol. 66, No. 4, pages 1099-1111, Friday January 5, 2001.

5. Claims 1-14 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for a method for diagnosing a genetic susceptibility for Crohn's disease wherein the methods comprise obtaining a biological sample containing nucleic acid from an Acadian subject, directly assaying said sample for the presence of an A>T polymorphism that is located at 2033 base pairs from the 3' end of the eleventh intron of the CSF1R gene, and diagnosing the subject as having an increased genetic susceptibility for Crohn's disease if there is a T at position 2033, as compared to a subject having an A at position 2033, does not reasonably provide

enablement for (i) a method for diagnosing a genetic susceptibility for Crohn's disease wherein the methods comprise obtaining a biological sample containing nucleic acid from a subject, and analyzing said sample for the presence of any SNP in the CSF1R gene wherein said SNP is associated with a genetic predisposition for inflammatory bowel disease and (ii) a method of treatment or prophylaxis comprising obtaining a biological sample containing nucleic acid from a subject, analyzing said sample for the presence of any SNP in the CSF1R gene associated with a genetic predisposition for inflammatory bowel disease, and treating the subject for inflammatory bowel disease. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the invention commensurate in scope with these claims.

The following factors have been considered in formulating this rejection (*In re Wands,* 858F.2d 731, 8 USPQ2d 1400 (Fed. Cir. 1988): the breadth of the claims, the nature of the invention, the state of the prior art, the relative skill of those in the art, the predictability or unpredictability of the art, the amount of direction or guidance presented, the presence or absence of working examples of the invention and the quantity of experimentation necessary.

Nature of the Invention

Claims 1-6 are drawn to a method for diagnosing a genetic susceptibility for an inflammatory bowel disease in a subject by detecting the presence or absence of a single nucleotide polymorphism in a CSFIR gene. Claims 7-14 are drawn to a method of treatment or prophylaxis in a subject by detecting the presence or absence of a single

nucleotide polymorphism in a CSFIR gene and then treating the subject for inflammatory bowel disease. Thus the nature of the invention requires the knowledge of a reliable association between the presence of polymorphisms in the CSF1R gene and inflammatory bowel disease. The invention is in a class of inventions which the CAFC has characterized as 'the unpredictable arts such as chemistry and biology" (Mycolgen Plant Sci., Inc. v. Monsanto Co., 243 F.3d 1316, 1330 (Federal Circuit 2001)).

Scope of the Claims:

In the instant case the claims are extremely broad for several reasons. First of all the claims encompass detecting ANY SNP in the CSF1R gene that is associated with a genetic predisposition for inflammatory bowel disease. However the claims do not define the nucleotide variation in terms of particular structure or function, therefore the claims encompass the analysis of any variation (i.e. insertions, substitutions, inversions, deletions, translocations) at any position in gene that is associated with a genetic predisposition for inflammatory bowel disease. Although claims 2 and 8 recite that the genetic modification is located at 2033 base pairs from the 3' end of the eleventh intron of the CSF1R gene, this is still problematic because the claims do not recite specific alleles that occur at this position that are associated with inflammatory bowel disease. Further the claims encompass ANY type of inflammatory bowel disease such as Crohn's disease, ulcerative colitis, collagenous colitis, lymphocytic colitis, ischaemic colitis, Bechcets syndrome etc. Additionally the claims encompass a method wherein the biological sample is obtained from ANY subject (i.e., human, fish, snake). With respect to humans the claims encompass humans from ANY ethnic background.

Finally claims 7-14 are drawn to a method of treatment or prophylaxis in a subject. Since the preamble and final step do not agree the claims encompass a method of treating or preventing any disease or condition as well as a method of treating or preventing any type of inflammatory bowel diseases. Further the claims do not specify what the treatment is and therefore encompass a method of administering any type of treatment.

Teachings in the Specification and Examples:

The specification (page 14) teaches 3 mutations in the CSF1R gene that result in nucleic acid substitutions, namely the G2088C, C2012A, and A2033T nucleic acid substitutions. Based on the specification it appears that the G2088C mutation occurs in the promoter and that the C2012A and A2033T mutations occur in introns. It is noted for the record that the specification (page 14) teaches that the A2033T mutation occurs in the second intron (para 0033), but then Table 2 teaches that this same mutation occurs in intron 1, and additionally the specification (page 14) teaches that this SNP was detected in the eleventh intron (para 0036). Therefore it is not clear which intron this SNP actually occurs in. The specification also discloses the prevalence of the SNPs in patients with Crohn's disease and controls. The results are presented in Table 2 and based on the data only the A2033T mutation was found to be statistically associated with Crohn's disease.

Next the presence or absence of the A2033T SNP detected in 111 patients with Crohn's disease and 108 patients controls. The results are shown in Table 3. As you can see thirty patients with Crohn's disease (27%) had the T allele and only 14 controls

(13%) had the T allele ($p<0.01$). Table 4 shows this same data stratified by ethnicity. While the T allele is more frequently present in Acadian, Caucasian, Jewish, and Unknown patients diagnosed with Crohn's disease than controls, it is noted that the T allele is more frequently present in African-American and Hispanic controls than in patients diagnosed with Crohn's disease. Further there is no indication whether the results presented in Table 4 are statistically significant. Table 5 further demonstrates that in the case of Crohn's patients of Acadian descent, the rate of the T allele was significantly higher than the rate of the T allele in all other ethnicities combined. Also Table 6 shows the rate of the T allele in non-Acadian patients with Crohn's disease to those of non-Acadian controls. Here patients with Crohn's disease still had significantly higher rates of the T allele than controls.

In the instant case the specification does not demonstrate that any nucleotide variation in the CSF1R gene will be associated with inflammatory bowel disease. In fact the specification only exemplifies 1 mutation in the CSF1R gene that is associated with Crohn's disease. Further the specification does not teach that any genetic modification that occurs at 2033 base pairs from the 3' end of the eleventh intron of the CSF1R gene will be associated with Crohn's disease. Only specific allele changes at this position will be associated with Crohn's disease. Further there are not examples in which the SNP was detected in patients with other types of inflammatory bowel diseases. Also there are no examples in which the SNP was detected in samples obtained from other organisms besides humans. Claims 7-14 are drawn to a method of treatment or prophylaxis in a subject however there are no examples in the specification where a

subject is treated for inflammatory bowel disease or any other disease or condition wherein the treatment results in the prevention of an inflammatory bowel disease or other type of disease or condition.

The Predictability or Unpredictability of the Art and Degree of Experimentation:

The art of identifying novel variants in CSF1R gene which are sufficiently correlated with inflammatory bowel diseases is highly unpredictable. Knowledge of the sequence of the wild type CSF1R gene does not allow one to immediately envision additional mutations in the CSF1R gene that are associated with inflammatory bowel diseases.

Lucentini (The Scientist) teaches that most gene association studies are typically wrong. Lucentini teaches that two recent studies found that typically when a finding is first published linking a given gene to a disease there is only roughly a one-third chance that the study will reliably confirm the finding (page 2). Lucentini teaches that bigger sample sizes and more family-based studies, along with revised statistical methods should be included in the gene association studies (page 3). This is consistent with the teaching of Wacholder et al (J. Natl. Cancer Institute 2004) who notes that "too many reports of associations between genetic variants and common cancer sites and other complex diseases are false positives (see abstract). Wacholder further teaches that there is a high chance that an initial statistically significant finding will turn out to be a false positive finding even for large, well designed, and well conducted studies (Page 434 Column 1). In view of Lucentini and Wacholder it is relevant to point out that a follow up study performed by Leung et al (Int J Colorectal Dis 2007) using the same

primer set described by the Applicants found no evidence that the 2033T variant is a major risk factor for Crohn's disease in New Zealand. Their study looked at 182 Caucasian Crohn's disease patients and 188 ethnically matched controls.

Further, it is unpredictable as to whether the results obtained in human subjects could be extrapolated to other organisms. Knowledge that mutations in a gene occur in one organism (i.e. humans) does not allow one to conclude that this gene, and mutations in this gene will also occur in other organisms and will be associated with HSP. The specification does not teach homologues of the CSF1R gene in a representative number of different organisms. The specification also does not teach any other organisms which have inflammatory bowel disease similar to those observed in humans, such that one would expect that mutations in the homologous CSF1R genes would lead to inflammatory bowel diseases in other organisms. In the absence of information regarding the functional properties of the CSF1R gene and the disclosed mutations in this gene, it is unpredictable as to whether the CSF1R gene, and particularly the A2033T mutation, will also be present in other organisms and will be associated with inflammatory bowel disease.

It is also unpredictable as to whether the results obtained with Crohn's disease can be extrapolated to other inflammatory bowel diseases. The teachings in the specification are limited to an association between the A2033T mutation and the occurrence of Crohn's disease. There are no teachings in the specification regarding the frequency of this mutation in other forms of inflammatory bowel disease.

Accordingly, it is unpredictable as to whether the presently claimed method can be used to diagnose ANY type of inflammatory bowel disease.

Quantity of Experimentation:

The specification teaches 1 variant in the CSF1R gene that is associated with an inflammatory bowel disease. To identify additional variants of the CSF1R gene which that is associated with inflammatory bowel diseases would require extensive experimentation. For example, such experimentation may involve sequencing the CSF1R gene of affected individuals representative of each type of inflammatory bowel disease, sequencing the CSF1R gene of control individuals which do not have an inflammatory bowel disease, comparing the sequences of these two groups, and then identifying variations which are present only in the affected group and not in the control group. Such random, trial by error experimentation is considered to be undue. While methods for sequencing genes are known in the art, such methods provide only the general guidelines that allow researchers to randomly search for mutations that may linked to a disease. The results of performing such methodology are highly unpredictable. The specification has provided only an invitation to experiment. The specification does not provide a predictable means for identifying additional variants of the CSF1R gene and using these variants to identify individuals susceptible to developing inflammatory bowel disease.

Conclusions:

Case law has established that '(t)o be enabling, the specification of a patent must teach those skilled in the art how to make and use the full scope of the claimed

invention without 'undue experimentation.'" *In re Wright* 990 F.2d 1557, 1561. *In re Fisher,* 427 F.2d 833, 839, 166 USPQ 18, 24 (CCPA 1970) it was determined that '(t)he scope of the claims must bear a reasonable correlation to the scope of enablement provided by the specification to persons of ordinary skill in the art". The amount of guidance needed to enable the invention is related to the amount of knowledge in the art as well as the predictability in the art. Furthermore, the Court in *Genetech Inc. v Novo Nordisk* 42 USPQ2d 1001 held that '(I)t is the specification, not the knowledge of one skilled in the art that must supply the novel aspects of the invention in order to constitute adequate enablement".

In the instant case, the claims are not fully enabled because the specification only teaches 1 mutation within the CSF1R gene that is associated with Crohn's disease in Acadians yet the claims encompass any variation in the CSF1R gene that is associated with any inflammatory disease in any type of subject. Further the specification does not teach that the A2033T mutation was present in any other organism. Additionally the specification does not teach that inflammatory bowel diseases or any other diseases or condition can be prevented by administering a treatment. Accordingly, although the level of skill in the art of molecular biology is high, given the lack of disclosure in the specification and in the prior art and the unpredictability of the art, it would require undue experimentation for one of skill in the art to make and use the invention as broadly claimed.

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

As noted in the MPEP 211.02, " a preamble is generally not accorded any patentable weight where it merely recites the purpose of a process or the intended use of a structure, and where the body of the claim does not depend on the preamble for completeness but, instead, the process steps or structural limitations are able to stand alone." Further, in *Pitney Bowes Inc. v. Hewlett-Packard Co.*, 182F.3d 1298, 1305, 51 USPQ2d 1161, 1166 (Fed Cir. 1999) the court held that if the body of the claim sets forth the complete invention, and the preamble is not necessary to give "life, meaning and vitality" to the claim, "then the preamble is of no significance to claim construction because it cannot be said to constitute or explain a claim limitation." In the present situation, the process steps are able to stand alone and the preamble limitation is not accorded patentable weight. Accordingly, the claim language of "a method for diagnosing a genetic susceptibility for an inflammatory bowel disease" merely sets forth the intended purpose of the claimed method, but does not limit the scope of the claims.

Claims 1-4 and 6 rejected under 35 U.S.C. 102(b) as being anticipated by Genbank (rs2282804 entered 9/2001).

GenBank teaches a SNP (rs2282804) that is present 2033 base pairs from the 3' end of the eleventh intron of the CSF1R gene. In the instant case because the SNP disclosed by GenBank is the same as the presently claimed SNP, it is a property of the SNP (rs2282804) that it associated with the inflammatory bowel disease of Crohn's disease. Further, the submitter for rs2282804 discloses that the SNP was detected in subjects by performing PCR and sequencing the PCR amplification products. Thus the submitter is considered to have disclosed a method comprising obtaining a biological sample from a subject and analyzing the nucleic acid (i.e, DNA) present in the sample to detect the presence or absence of the SNP rs2282804.

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Genbank (rs2282804 entered 9/2001) in view of GenBank (Accession U63963 GI 1915975 April 1997), and in further view of Buck (Biotechniques 1999).

The teachings of Genbank (rs2282804 entered 9/2001) are presented above.

The combined references do not teach a method wherein analysis is performed using SEQ ID NOs: 3 and 4.

However GenBank discloses the full length nucleic acid sequence of the CSF1R gene (Accession U63963 GI 1915975 April 1997). SEQ ID NOs: 3 and 4 of the instant invention are located within the GenBank sequence at positions 22305-22324 and 22795-22814 respectively.

Additionally Buck teaches a method wherein different primers were used to amplify a 300 bp nucleic acid sequence. Buck teaches that they expected a wide range in the performance of the primers however all of the primers functioned extremely well (page 533). Thus Buck teaches it is obvious to use any primer to amplify a known nucleic acid sequence.

While GenBank does not teach a method of detecting the SNP located at 2033 base pairs from the 3' end of the eleventh intron of the CSF1R gene using the primers of SEQ ID NO: 3 and 4 it was well known in the art at the time the invention that primers which bracket a known mutation could be used to amplify the region containing the mutation in order to detect the mutation. Designing primers which are equivalents to those recited by the claims is considered routine experimentation especially since the full length sequence of the CSF1R gene was already known. Further the parameters

and objectives involved in the selection of primers were known. Thus the prior art is replete with guidance and information necessary to permit the ordinary artisan to design primers for the detection of the A2033T mutation of the CSF1R gene. Further, based on the teachings of Buck and the computer programs available for designing primers an ordinary artisan to have more than a reasonable expectation of success of making primers for detecting the A2033T mutation. Thus, for the reasons provided above, a method using primers comprising SEQ ID NO: 3 and 4 to analyze the A2033T mutation would have been obvious to one of ordinary skill in the art.

Conclusion

8. No Claims are allowed.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to AMANDA SHAW whose telephone number is (571)272-8668. The examiner can normally be reached on Mon-Fri 7:30 TO 4:30. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ram Shukla can be reached at 571-272-0735. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Amanda M. Shaw
Examiner
Art Unit 1634

/Carla Myers/
Primary Examiner, Art Unit 1634